

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
RESPONSE C



#13
Response
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APPLICANT: Schwalke, et al. DOCKET NO: P99,2666
SERIAL NO.: 09/462,994 ART UNIT: 2823
FILED: January 14, 2000 EXAMINER: B. Kebede

TITLE: Integrated Circuit Arrangement and Method for the Manufacture
Thereof

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Assistant Commissioner for Patents,
Washington, D.C. 20231

Dear Sir:

This amendment is responsive to the final Office Action dated January 2,
2002.

REMARKS

Applicants have concurrently submitted with this response a Petition
requesting that Preliminary Amendment be considered filed as of January 14, 2000
and that the finality of the last Office Action be withdrawn so that the originally
submitted amended claims can be considered. A copy of this petition along with the
Preliminary Amendment have been attached as an Appendix to this response.
Reconsideration in light of this Preliminary Amendment is respectfully requested.

Claims 1-10 (11-21 according to the Preliminary Amendment) are pending in
the application. The claims 1-10 were rejected as follows:

Claims / Section	35 U.S.C. Sec.	References / Notes
8-10	§112, Second Paragraph indefiniteness	• Product or process scope
1-10	§102(e) Anticipation	• Uehara, et al. (U.S. Patent No. 5,698,902) .

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Applicants believe that the inclusion of the Preliminary Amendment adequately addresses the Examiner's 35 U.S.C. §112 rejection and respectfully request that it be withdrawn.

Applicants respectfully note that in the explanations provided below, the use of reference characters is for providing clarification for an exemplary embodiment and should not be construed as limiting the invention in any manner beyond the broadest reasonable interpretation without reference characters.

35 U.S.C. §102(e), Claims 1-10 (now 11-21) Anticipation by Uehara '902

1. *Uehara does not teach or suggest a conductive filler structure that is conductively connected to a doped region.*

The independent claims of the present invention, both in original claims 1-10 and amended claims 11-21 contain a limitation that the conductive filler structure (72) is conductively connected to the doped region (3).

Uehara teaches (referring to Fig. 6) that the dummy electrodes 50b (and corresponding layers 16b and 18b) are insulated from the doped regions (source/drain regions 21, 21a, 21b) by insulating films (gate insulating film 15a and dummy insulating film 15b, and dummy protective film 19b). Thus Uehara actually teaches away from the invention.

The invention of the present application addresses problems with an integrated circuit arrangement having conductive structures used as gate electrodes and with conductive filler structures used as dummy structures. In these circuits, the dummy structures do not have any electrical function in the integrated circuit arrangement but they are required for improving planarity when manufacturing the integrated circuit arrangement. The dummy structures are provided in those regions of the semiconductor substrate surface where the geometrical density of conductive

structures is very low.

These integrated circuits, however, have a problem in that the electrically conductive filler structures become charged. According to the present invention this problem is solved by connecting these filler structures with conductive doped region in the semiconductor substrate material, possibly with the aid of an electric contact. One possible contact is illustrated in Figure 7 of the present application (see reference No. 132) and may have a T-shaped form. At the bottom of an exemplary T-shaped contact 132, the doped well 3 in the substrate 1 is contacted. At the bottom of the broadened upper portion of the contact 132 a dummy filler structure 72 is contacted. This eliminates the problematic charging of the filler structure.

In more detail, Uehara does not teach or suggest the present invention because there is no electrical contact between the dummy structure 50b (or its layers 16b, 18b) and a doped region.

Uehara shows withdrawn electrode metal layers 31 contacting doped regions 21, 21b which are source/drain regions of the MOSFET comprising the gate electrode 50a. The withdrawn electrode metal layers 31 serve to provide electric contacts 33, 34 of the source/drain regions at a larger distance from the gate electrode stack 50a. The metal layers 31 do not serve as electrical contacts between the dummy structures 50b and the doped source/drain regions 21, 21b since there is no conductive connection between the dummy structure 50b and the metal layer 31. The dummy structure 50b comprising the conductive layers 16b, 18b is surrounded by a dummy insulating film 15b underneath (see column 13, line 11), a protective insulating film 19b (see column 13, line 8), a dummy spacer 20b (see column 13, line 15) and an isolation region 17 (see column 13, lines 3 to 4). All of these layers and regions are made of silicon dioxide and therefore are isolating rather than

conductive. In particular the protective insulating film 19b prevents an electric contact between the dummy structure 50b and the withdrawn electrode metal layer 31. For detailed description of figure 6 see column 12, line 56 to column 13, line 58.

Thus, even though Uehara deals with dummy structures used for improved pattern dimensions, it teaches away from the present invention because it does not teach or suggest an electric contact between a dummy structure and a doped well in a substrate that could be used to carry away the problematic charges of the dummy structures.


For these reasons, Applicants assert that the claim language clearly distinguishes over the prior art, and respectfully request that the Examiner withdraw the §102 rejection from the present application.

Conclusion

Inasmuch as each of the rejections have been overcome by the amendments and arguments presented, and all of the Examiner's suggestions and requirements have been satisfied, it is respectfully requested that the present application be reconsidered, the rejections be withdrawn and that this application be passed to issue.

Applicants respectfully request that the finality of the last Office Action be withdrawn so that the Preliminary Amendment may be considered by the Examiner.

Respectfully submitted,

 (Reg. No. 45,877)

Mark Bergner
SCHIFF HARDIN & WAITE
PATENT DEPARTMENT
6600 Sears Tower
Chicago, Illinois 60606-6473
(312) 258-5779
Attorney for Applicants
Customer Number 26574

IN THE ABSTRACT:

On page 10, cancel lines 1-2, insert the following centered heading at line 1:

--ABSTRACT OF THE DISCLOSURE--;

5 in line 3, cancel "(3)", and cancel "(1)", and cancel "with" substitute --
having-- therefor;
in line 4, cancel "(71)", and cancel "(72)";
in line 5, cancel "(1)", and cancel "(72)";
in line 6, after "to" cancel "the" substitute --a-- therefor, and cancel
10 "(10, 3)";
in line 7, cancel "(72)";
cancel line 9.

REMARKS:

15 The present Amendment revises the specification, drawings and
claims to conform to United States patent practice, before examination of
the present PCT application in the United States National Examination
Phase. All of the changes are editorial and no new matter is added
thereby. The cancellation of claims 1-10, in favor of new claims 11-21,
has been made solely for convenience, since the amount of bracketing
20 and underlining necessary to editorially amend claims 1-10 in order to
conform to United States patent practice would have been excessive and
burdensome. The cancellation of claims 1-10 is therefore not intended to
be a surrender of any of the subject matter of those claims.

Early examination on the merits is respectfully requested.

Respectfully submitted,

 (Reg. No. 28,982)

Steven H. Noll

Hill & Simpson

A Professional Corporation

85th Floor - Sears Tower

Chicago, Illinois 60606

(312) 876-0200 ext. 3899

Attorneys for Applicant(s)

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